

Mamta Khosla
Indu Saini
(Editors)

*Proceedings of International Conference on
Women Researchers in Electronics and
Computing*

WREC'21 (22nd – 24th April, 2021)

Organized by

Department of Electronics and Communication Engineering,
Dr. B. R. Ambedkar National Institute of Technology,
Jalandhar, Punjab, INDIA

Published by

AIJR Publisher, Dhaurahra, Balrampur, India 271604



Table of Contents

Disclaimer	i
Foreword.....	ix
Organizing Committee.....	x
Efficient Tuning of Hyper-parameters in Convolutional Neural Network for Classification of Tuberculosis Images <i>Ruchika Arora, Indu Saini, Neetu Sood.....</i>	1
Improving Brain Tumor Segmentation with Data Augmentation Strategies <i>Radhika Malhotra, Jasleen Saini, Dr. Barjinder Singh Saini, Dr. Savita Gupta.....</i>	7
Lung Cancer Prediction Using Machine Learning: A Systematic Review <i>Vikas, Dr. Prabhpreet Kaur.....</i>	12
Leaf Disease Classification Using Convolutional Neural Network <i>Ms. Mitali V. Shewale, Dr. Robin Daruwalla.....</i>	20
Study the Effect of Body Postures on Skin Conductance Response and Heart Rate <i>Ankita Soni, Kirti Rawal.....</i>	30
Classification Comparative Analysis for Detection of Brain Tumor Using Neural Network, Logistic Regression & KNN Classifier with VGG19 Convolution Neural Network Feature Extraction <i>Vijaya Kamble, Dr. Robin Daruwalla.....</i>	38
Comparative Analysis of Segmentation Methods for Wheat Canopy Extraction <i>Ankita Gupta, Dr. Lakshwinder Kaur, Dr. Gurmeet Kaur.....</i>	48
An Optimal Approach to Detect the Human Heads using H-MTF in Crowded Scenes <i>Akanksha Bansal, Gunjan Verma, Manoj Kumar.....</i>	56
Automated Segmentation of Leukocytes using Marker-based Watershed Algorithm from Blood Smear Images <i>Vipasha Abrol, Sabrina Dhalla, Jasleen Saini, Ajay Mittal, Sukhwinder Singh, and Savita Gupta</i>	65
A Sub-band Anisotropic Diffusion Technique for de-speckling of Ultrasound Images of Breast Cancer <i>Mayank Kumar Singh, Dr. Indu Saini, Dr. Neetu Sood, Jasleen Saini.....</i>	72
Real Time Smartphone Data for Prediction of Nomophobia Severity using Supervised Machine Learning <i>Anshika Arora, Pinaki Chakraborty, M.P.S. Bhatia.....</i>	78
Different Classification Approaches for Early Detection of Parkinson's Disease <i>Nikita Aggarwal, Jasleen Saini, Dr. B.S. Saini, Dr. Savita Gupta</i>	84
Fatigue Detection Post Physical Activity: A Review <i>Ashish Sharma, Gaurav Sethi</i>	89
Design of Low Power Neuro-amplifier Circuit with Miller Compensation Technique for Biomedical Neuro-implantable Devices <i>Kriti Dwivedi, Aparna Gupta, Ritika Oberoi, Ribu Mathew</i>	98

Cardiovascular and Cardiorespiratory Signals Complexity Analysis Using Different Techniques	
<i>Kirti Singh, Indu Saini, Neetu Sood</i>	105
A Review on various Ultrasound Image Despeckling Techniques	
<i>Abhinav Panwar, Ramesh K. Sunkaria, Anterpreet Bedi</i>	111
Signature Matching for Seismic Signal Identification	
<i>Pankaj Jadhar, Debabrata Datta, Siddhartha Mukhopadhyay</i>	118
Evolutionary Techniques on Fetal Head Segmentation	
<i>Prerna Bhalla, Ramesh Kumar Sunkaria, Anterpreet Kaur Bedi</i>	130
A Review of Brain Tumor Image Segmentation of MR Images Using Deep Learning Methods	
<i>Amishi Vijay, Jasleen Saini, Dr. B. S. Saini</i>	137
Computer Aided Tuberculosis Detection, A Review	
<i>Pragya Shukla, Jasleen Saini, Dr. B. S. Saini</i>	146
Variants of Local Binary Pattern: A Review	
<i>Aditya Singh, Ramesh k. Sunkaria, Anterpreet Kaur</i>	153
A Review on Plant Stress Detection and Analysis Through Electrophysiological Signals	
<i>Kavya Sai, Dr. Neetu Sood, Dr. Indu Saini</i>	159
An Improved Method to Remove Salt and Pepper Noise in Noisy Images	
<i>Jinder Kaur, Gurwinder Kaur, Ashwani Kumar</i>	164
An Evaluation Based on Diabetic Retinopathy	
<i>Simran Kaur, Dr. Barjinder Singh Saini</i>	174
A Review on Security and Scalability in M2M	
<i>Simranjit Singh, Pavan Kumar Verma</i>	181
Temperature variations within a multi-layered skin tissue exposed to the 5G mobile communications frequency radiation	
<i>Jagbir Kaur, Sıyeb Ahmed Khan</i>	187
Food image recognition based on MobileNetV2 using support vector machine	
<i>Sapna Yadav, Satish Chand</i>	192
IoT-based Earthquake Prediction Using Fog and Cloud Computing	
<i>Kanika Saini, Sheetal Kalra</i>	201
Internet of Things: A Comprehensive Study on Machine Learning based Intrusion Detection approaches	
<i>Priyanka Gupta, Lokesh Yadav, Deepak Singh Tomar</i>	208
A Review on Evolution Trends in Passive Optical Networks	
<i>Er. Ramandeep Kaur, Dr. Simranjit Singh</i>	219
Drowsy Driver Detection using MSER Feature Detection and Binarization on MATLAB	
<i>Asma Jamesh</i>	227
Comparative Analysis of Clipping-filtering, SLM and PTS for PAPR Reduction Technique in OFDM System	
<i>Sneha Singhal, Dheeraj Kumar Sharma</i>	235

MAC Protocols for Wireless Body Sensor Network <i>Harinder Kaur, Sharvan Kumar Pabuja</i>	244
Hata Model Path Loss Optimization using Least Mean Square Regression <i>Deepti Kakkar, Aditi Bharmak, Ankita Sharma, Eshwari S.S. Dagar, Parul Rattanpal, Shefali Sharma</i>	250
Development of an Efficient Indoor Optical System using Different Wavelet Transforms <i>Ankita Aggarwal, Dr. Gurmeet Kaur</i>	257
A Brief Review of Energy Efficient Protocols in Mobile Ad hoc Networks <i>Kirandeep Kaur, Satinder Kaur</i>	265
HATA Path Loss Model Optimization Using Particle Swarm Algorithm <i>Dr. Deepti Kakkar, Ashish Prashar, Mehar Latif, Aitrayee Konar, Kishan Kuma, Amitabh Tripathi</i>	271
A Review on Fractal Geometry Enhanced Vehicular Communication under 5G Environment <i>K. Raghavendra, Dr. Deepti Kakkar</i>	280
L-Slots Square Antenna for Octa-band Applications <i>Tejaswita Kumari, Prabir Ghosh, Atanu Chowdhury</i>	289
A Review Analysis on Microstrip Patch Antenna <i>Simerpreet Singh, Gaurav Sethi, Jaspal Singh Khinda</i>	297
Physical Layer Security in Wireless Communication: An Overview <i>Shrishti Gaur, Neetu Sood</i>	304
Polarization Multiplexed Self-Homodyne Optical Communication System <i>Mansi Fulzele, Anamika Singh, Avinash Keskar</i>	310
A Theoretical Framework for the 6G Wireless Communication Standard Vision, Applications and Challenges <i>Faizan Nazir, Dr Neetu Sood</i>	320
Outdoor Radio Propagation Model Optimization Using Genetic Algorithm <i>Deepti Kakkar, Amarab Zabra, Hritwik Todawat, Vaishnavi Singh, Farhana Shahid, Vidhya Sagar</i>	330
A Review of Various Approaches for Beam Steering in Lens Antenna <i>Avinash Saroj, Dr. Nitesh Kashyap</i>	336
Fuzzy-Neuro Network in a CO-OFDM System: Various Membership Functions Comparison <i>Gurpreet Kaur, Gurmeet Kaur</i>	343
Code Summarization: Generating Summary of Code Snippets <i>Shreya. R. Mehta, Sneha. S. Patil1, Nikita. S. Shirguppi, Dr. Mrs. Vabida Attar</i>	351
Emergence of Digitized Gamification as an Educational Tool and the Implications on Digital Literacy and Equity <i>Kirsilyn C. Harris, Jesse M. Redlo</i>	364
Blockchain: Open Source Platforms-A Review <i>Er. Aarti, Amit Kumar</i>	369
Task Scheduling Algorithms for Cloud Computing: A Critical Review and Open Research Challenges <i>Gagandeep Kaur, Anurag Sharma</i>	377

Practical Implementation of 3D Smart Walking Stick for Blind People <i>N Dinesh Kumar, A Sushmitha Mala</i>	391
ASD Diagnoses using Deep Learning and Neuroimaging as A Biomarker: A Review <i>Sonali Beri, Arun Khosla</i>	399
Time Reversal Reconstruction Algorithm for Photoacoustic Imaging <i>Snigdha Dange</i>	405
Role of Serious Games in enriching Watershed Conservation Manoeuvres <i>Parampreet Singh, Nadeem Ahmad Khan, Arun Khosla, Girish Pujar</i>	414
Geospatially Enabled Serious Gaming for Decision Support in Agroforestry System: A Conceptual Study <i>Nadeem Ahmed Khan, Arun Khosla, Parampreet Singh</i>	420
A Comparative Study of E-Mail Spam Detection using Various Machine Learning Techniques <i>Simarjit Kaur, Meenakshi Bansal, Ashok Kumar Bathla</i>	426
An Analysis of Heuristics for a Mathematically Incomplete Variant of TicTacToe <i>Feyaz Baker, Arunava Mukhoti, B. R. Chandavarkar</i>	436
Signal Conditioning ASIC for the Detection of Combustible Gases <i>Shelja Kaushal, Ashwani K. Rana</i>	448
A Temperature-Dependent Threshold Voltage Model for SiGe Source/Drain Si-NT JLFET <i>Anchal Thakur, Rohit Dhiman</i>	457
Simulation of Counter Based DPWM for implementation on FPGA <i>Vindhyali Sood, M.P.R.Prasad</i>	465
Organic Thin Film Transistors for Flexible Electronics <i>Aenakshi Sircar</i>	473
Design and Simulation of Silicon Nanowire Tunnel Field Effect Transistor <i>Parveen Kumar, Balwinder Raj</i>	482
Comparative Analysis of Multiplications Technique Conventional, Booth, Array Multiplier and Vedic Arithmetic Using VHDL <i>Akash Kumar, Tarun Chaudhary, Vijay Kumar Ram</i>	489
Design of Constant Transconductance Operational Amplifier by CMOS with High Gain and Low Operational Power <i>Parvesh Kumar, Tarun Chaudhary, Vijay Kumar Ram</i>	498
A Literature Survey on Tunnel Field Effect Transistors <i>Soumya Sen, Ashish Raman, Mamta Khosla</i>	506
Fabrication Process of MBCFET and its Characteristics <i>Amarah Zabra, Tarun Chaudhary, Farhana Shahid, Hritvik Todawat, Vaishnavi Singh, Vidhya Sagar, Vineeta Sabani</i>	513
Novel Non-planar Structures of TFET Device to Enhance Performance <i>Tulika Chawla, Mamta Khosla, Balwinder Raj, Sanjeev Kumar Sharma</i>	518

Dual-Cavity Triple-Metal Gate-Underlap Dielectric-Modulated Charge-Plasma-based TFET for the Biomolecules Recognition <i>Abhijeet Sahu, Dr. Mamta Khosla, Dr. Neetu Sood, Girish Wadhwa</i>	530
Design and Analysis of a Dual Material Triple Gate TFET with the Pocket Doping for the Performance Enhancement <i>Rahul Gupta, Dr Mamta Khosla, Girish Wadhwa</i>	539
Design of Reed-Solomon Encoder for Error Detection in DRAM Cells <i>Prateek Asthana, Gargi Khanna, Sabil Sankhyan, Tarun Chaudhary</i>	551
Design and Performance Analysis of 4-input Multiplexer Tree using FGMOS <i>Kanika Sharma, Vandana Niranjana, Ashwini Kumar, Shilpa C Lal</i>	557
Design and Performance Investigation of Symmetrical Dual Gate Doping-less TFET for Biomolecule Recognition <i>Ms. Aishwarya Tomar, Dr. AK Shankhwar</i>	567
Fuzzy-Logic based Selection and Switching of Channels in Cognitive-Radio Networks <i>Nikita Kanchan</i>	577
Experimental Analysis of Attacks on RSA & Rabin Cryptosystems using Quantum Shor's Algorithm <i>Ritu Thombre and Babita Jajodia</i>	587
Squaring Technique using Vedic Mathematics <i>Jasmine Bajaj and Babita Jajodia</i>	597